Los Alamos National Laboratory **Environmental Restoration Program** **Standard Operating Procedure**	No: LANL-ER-SOP-6.28 Rev: 0

CHIP SAMPLING OF POROUS SURFACES

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1.0 PURPOSE

This procedure describes a methodology for collecting chip samples representative of porous surfaces, and the selection of equipment and materials to be used in the process.

2.0 SCOPE

2.1 Applicability

This procedure applies to personnel responsible for obtaining chip samples of porous surfaces for the Environmental Restoration (ER) Program. Porous surface sampling techniques are used for any porous object considered too large for collection as a discreet sample, or for cases where surficial contamination rather than contamination of the bulk material is of interest. Examples include intact structures such as a roadbed or wall, chunks of debris too large for transport, boulders or bedrock surfaces, and surfaces of functioning structures.

2.2 Training

The field team leader and the field team members shall be familiar with the objectives of chip sampling of porous surfaces and shall document that they have read and understood this procedure.

3.0 DEFINITIONS

Porous surface: in this context, a surface capable of allowing the passage of liquid through pores or small crevices. Examples of porous materials applicable to the ER Program include asphalt, concrete, wood, brick, unglazed clay pipe, and tuff.

4.0 BACKGROUND AND/OR CAUTIONS

The chipping process may create flying particles that could cause physical harm, particularly to the eyes.

5.0 EQUIPMENT

The equipment required to implement this procedure is listed in Attachment A.

6.0 PROCEDURE

A. Identify the types of analyses to be conducted on the samples. Coordinate the sampling effort with the Sample Coordination Facility (SCF). The SCF will give guidance regarding sample containers, preservation, and shipment to the SCF.

B. Gather and decontaminate the necessary supplies and equipment in accordance with LANL-ER-SOP 01.08, Field Decontamination of Drilling and Sampling Equipment.

C. Assemble the tools and supplies and put on personal protective equipment, including goggles and work gloves.

D. Perform any *in situ* screening required by applicable work plans or health and safety plans. Remove undesirable surface materials from the sampling location by brushing or wiping, as appropriate. Using a chisel, drill, hole saw, or similar tool, collect a minimum of 100 grams of sample to a depth of 2 centimeters, or to an alternate depth specified in applicable planning documents. The sampled surface area and sampling depth should be recorded in the field Sample Collection Log. Non-porous inclusions, such as stones, glass, or metal, imbedded in the porous material, should be removed from the sample. The collected chips may be of any convenient size unless otherwise specified in applicable planning documents.

E. Transfer the sample to an appropriate sample container. Consult the SCF and LANL-ER-SOP 01.02, Sample Containers and Preservation, Attachment D, for guidance regarding the amount (given in ml) of sample, the type of sample container, holding time, and preservation techniques to be used for each analysis to be conducted.

F. Complete Sample Collection Logs, Master Collection logs, and Chain of Custody Forms; label sample containers and complete documentation in accordance with LANL-ER-SOP 01.04, Sample Control and Field Documentation.

G. Clearly mark the sampled surfaces with paint or other indelible medium. The mark should include the site identification number. Document the site with photographs, if appropriate.

H. Decontaminate the equipment, if intended for immediate reuse, prior to collecting the next sample. Pack the samples for shipping to the SCF. Handle sampling wastes, excess sample materials, disposable items, and decontamination fluids following LANL-ER-AP-05.3, Management of Resource Conservation and Recovery Act facility investigations (RFI)-Generated Waste.

I. Upon completing sampling, pack equipment for cleaning and return equipment and supplies to their proper storage locations.

7.0 REFERENCES

LANL-ER-SOP-01.01, General Instructions for Field Investigations.
LANL-ER-SOP-01.02, Sample Containers and Preservation
LANL-ER-SOP-01.04, Sample Control and Field Documentation
LANL-ER-SOP-01.08, Field Decontamination of Drilling and Sampling Equipment.
LANL-ER-AP-05.3, Management of RFI-Generated Waste.

8.0 RECORDS

Completed Sample Collection Log
Completed Location Information Form
Completed Master Collection Log
Completed Chain of Custody/Request for Analysis Form
Completed Daily Activity Log, including any deviations or other pertinent information.

The person performing chip sampling is responsible for completing these logs and forms in accordance with LANL-ER-SOP-1.04, Sample Control and Field Documentation. The person performing chip sampling is also responsible for transferring the records generated under this procedures to the Environmental Records Processing Facility (RPF) in accordance with LANL-ER-AP-02.1, Procedure for LANL ER Records Management.

9.0 ATTACHMENTS

Attachment A - Equipment and Supplies Checklist for Chip Sampling of Porous Surfaces

EQUIPMENT AND SUPPLIES CHECKLIST FOR CHIP SAMPLING OF POROUS SURFACES

Protective equipment
___Safety glasses
___Sturdy work boots
___Work gloves

Sample preparation equipment
___Alconox
___Blue ice or equivalent
___Camera and film
___Chem wipes
___Cleaning wipes
___Disposable laboratory gloves
___Paint or other indelible medium to identify sample location
___Sample containers and preservatives
___Storage containers for decontamination solutions

Sample collection and decontamination equipment
___Brushes (galvanized, stainless steel, or plastic)
___Brushes (long handle, scrub, or wire)
___Drive hammer (3 to 10 lbs)
___Wash tub or plastic bucket
___Garden pressure or squeeze bottle sprayer
___Plastic sheet
___Stainless steel chisel
___Stainless steel drill
___Stainless steel hole saw
___Tape measure
___Trash bags

Paperwork
___Borehole log (soil) form
___Chain-of-Custody/Request-for-Analysis Form
___Custody seals
___Daily activity logs
___Sample collection log
___Sample labels
___Unique sample identification number stickers
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Note: Not all equipment is expected to be needed at every site.